

Notice of Allowability

Application No.

09/643,759

Examiner

Yubin Hung

Applicant(s)

OKAYAMA ET AL.

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on June 30, 2004.
2. ☒ The allowed claim(s) is/are 1-18 and 25-27.
3. ☒ The drawings filed on 23 August 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

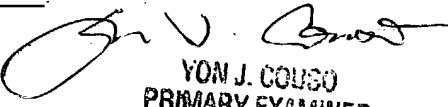
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


YON J. COUSO
PRIMARY EXAMINER

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 30, 2004 has been entered.

Response to Arguments/Amendment

2. This action is in response to amendment filed on June 30, 2004.
3. In view of the applicant's amendment, the 35 USC § 112 rejection has been withdrawn.
4. Claims 19-24 have been canceled.
5. Claims 1-18, 25-27 as amended are allowed.

Examiner's Amendment

6. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John R. Mattingly on September 1, 2004.

7. The application has been amended as follows:

Replace the title with the following:

"Image Processing System and Apparatus for
Combining Supplemental Information with Images"

Replace claims 1, 11, 16 and 25 with the following:

1. (Currently Amended) An image processing system comprising:
a camera; and
an image processor for processing camera image data obtained from said camera,

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said image processor comprising:
 supplement information image generation means for imaging supplement information relating to said camera image data and generating supplement information image data;
 combining means for combining data obtained in middle of JPEG encoding of said camera image data with data obtained in middle of JPEG encoding of said supplement information image data; and
 Huffman encoding means for conducting Huffman encoding on composite data obtained by said combining means,
 difference detection means for calculating for each pixel a difference between its values from two said camera image data input at different times from said camera; and
 judgment means for judging that when said difference of at least one pixel is larger than a predetermined value, a block of a given size including pixels from which such difference is obtained corresponds to a moving portion in said camera image data,
 wherein said combining means combines data obtained in middle of JPEG encoding of said camera image data and data obtained in middle of JPEG encoding of said supplement information image data so that said supplement information image data is visible in said block indicating said moving portion in said camera image data, when JPEG data for image display obtained by Huffman encoding means is displayed.

11. (Currently Amended) An image processor comprising:
 input means for inputting a camera image picked up by a camera;
 supplement information image generation means for imaging supplement information relating to said camera image and generating supplement information image data;
 camera image compression means for compressing camera image data of said camera image;
 supplement information image compression means for compressing said supplement information image data;
 difference detection means for calculating for each pixel a difference between its values from two said camera image data input at different times from said camera;
 judgment means for judging that when said difference of at least one pixel is larger than a predetermined value, a block of a given size including pixels from which such difference is obtained corresponds to a moving portion in said camera image data; and
 combining means for combining data obtained in middle of compression of said camera image data with data obtained in middle of compression of said supplement information image data so that said supplement information image data is visible in said block indicating said moving portion in said camera image data, when data obtained by said combining means is displayed.

16. (Currently Amended) An image processor comprising:

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input means for inputting a camera image picked up by a camera;

supplement information image generation means for imaging supplement information relating to said camera image and generating supplement information image data;

compression means for conducting irreversible compression and then reversible compression on image data;

difference detection means for calculating for each pixel a difference between its values from two said camera image data input at different times from said camera;

judgment means for judging that when said difference of at least one pixel is larger than a predetermined value, a block of a given size including pixels from which such difference is obtained corresponds to a moving portion in said camera image data; and

combining means for combining camera image data of said camera image subjected to the irreversible compression in said compression means with said supplement information image data subjected to the irreversible compression in said compression means so that said supplement information image data is visible in said block indicating said moving portion in said camera image data, when data obtained by said combining means is displayed, composite data obtained by said combining means being subjected to reversible compression in said compression means.

25. (Currently Amended) An image processor comprising:

a first encoding means for executing DCT conversion on a first image data, quantizing said first image data subjected to said DCT conversion and executing Huffman encoding on said first image data quantized;

a second encoding means for executing DCT conversion on a second image data, quantizing said second image data subjected to said DCT conversion and executing Huffman encoding on said second image data quantized;

difference detection means for calculating for each pixel a difference between its values from two said camera image data input at different times from said camera;

judgment means for judging that when said difference of at least one pixel is larger than a predetermined value, a block of a given size including pixels from which such difference is obtained corresponds to a moving portion in said camera image data,

linking means for linking said first image data encoded by said first encoding means to said second image data encoded by said second encoding means;

transmission means for transmitting linked data obtained from said linking means to a storage apparatus; and

decoding means for executing Huffman decoding on said first image data of said linked data in said storage apparatus, executing inverse quantization on said first image data subjected to said Huffman decoding and executing inverse DCT conversion on said first image data subjected to said inverse quantization,

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wherein said first encoding means combines said first image data subjected to said DCT conversion quantized by said first encoding means and said second image data subjected to said DCT conversion quantized by said second encoding means and executes Huffman encoding on said first image data combined so that said second image data is visible in a block indicating said moving portion in said first image data, when data obtained by said first encoding means are displayed, and said decoding means executes Huffman decoding on said second image data of said linked data in said storage apparatus, subtracts said second image data subjected to said Huffman decoding from said first image data subjected to said Huffman decoding, executes inverse quantization on said first image data subjected to the subtraction and executes inverse DCT conversion on said first image data subjected to said inverse quantization.

Allowable Subject Matter

8. Claims 1-18, , 25-27 are allowed.
9. The following is an examiner's statement of reasons for allowance:
10. Regarding claim 1, and similarly claims 11, 16 and 19, prior art of record fails to teach or suggest, alone or in combination, an image processing system comprising, along with other limitations:
 - judgment means for judging that when said difference at at least one pixel is larger than a predetermined value, a block of given size including pixels from which such difference is obtained corresponds to a moving portion in said first image data

Of the closest art of record, Koga et al. (US 4,851,906) determines that a given block is in motion based on the sum of the absolute frame differences of *all* pixels in that block

[Col. 3, lines 13-20] and Yamasaki (US 5,627,586) computes a motion vector based on the displacement of a single "representative" point [Fig. 10; Col. 7, lines 18-27].

However, neither teaches using inter-frame differences at one or more pixels to obtain a block of a given size and to determine that the block corresponds to a moving portion.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

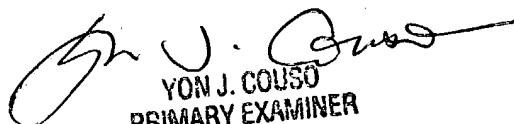
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (703) 305-1896. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
September 1, 2004


YON J. COLUSO
PRIMARY EXAMINER